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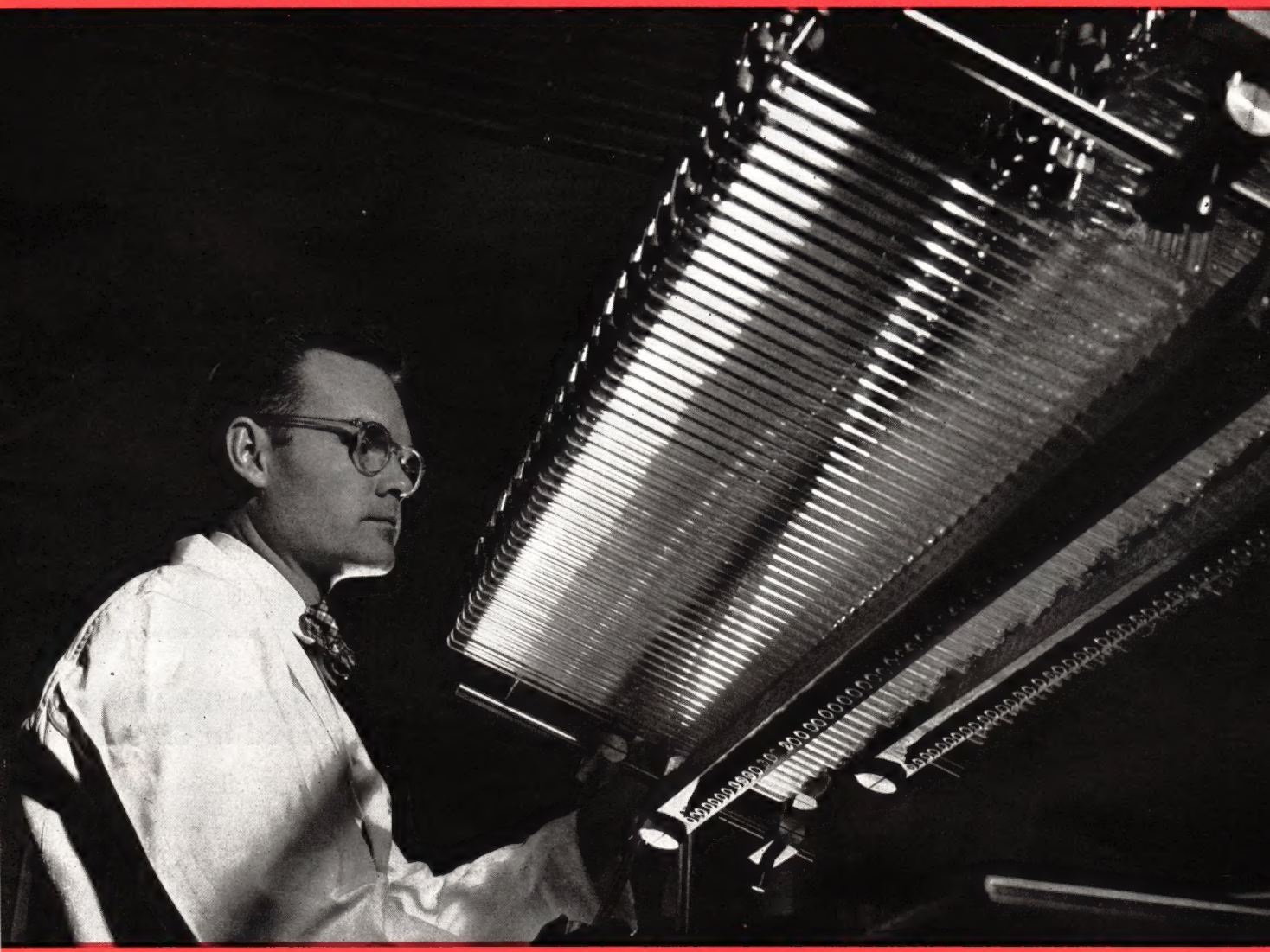
SCIENCE NEWS LETTER®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Helps Hearts

See Page 248

A SCIENCE SERVICE PUBLICATION

MEDICINE

Make Better Vaccines

Water-in-oil emulsion in just the right proportions doubles life of influenza vaccine and also gives protection against more strains of the virus.

➤ MIXING WATER with oil, in just the right way, is the latest trick of medical scientists to get better vaccines for protecting against virus diseases such as influenza and polio.

It was one of the tricks used by Dr. Jonas E. Salk of the University of Pittsburgh to improve his experimental vaccine against polio (see SNL, April 4, p. 211). Now he reports in the *Journal of the American Medical Association* (April 4) that he has used it again. This time the water mixed with oil tricked the influenza virus so that a vaccine against it becomes more effective.

Secret of the trick is two-fold: 1. The virus in the vaccine, technically called the antigen, stays for longer periods at the place it is injected. 2. The light mineral oil attracts the particular cells of the body which form anti-flu or anti-polio fighting substances. The emulsifying chemical used to make the water and oil mix may also play a part in making these cells accumulate around the injected vaccine.

The trick works, Dr. Salk points out, only with a water-in-oil emulsion in which the oil surrounds the vaccine in the emulsion particles.

Using this trick, Dr. Salk finds that anti-influenza vaccine protection last two years instead of one and also makes the vaccine protect against more strains of 'flu virus.

For each type of influenza virus there are several strains. In the past, this has been considered one difficulty in making a vaccine that would protect against whatever influenza virus was going around. The water-in-oil emulsion makes a vaccine that protects against not only the particular virus strain in the vaccine but also against other strains not in the vaccine. This was the case with some strains of some influenza types in Dr. Salk's experiments. He thinks now that it will be possible to make a vaccine with enough strains to cover all the strains for each virus type.

This would mean a 'flu vaccine that protected against the disease regardless of which type and strain was causing an epidemic.

This is even more probable because of a hitherto unpublished finding announced by Dr. Salk. This is that the great differences among strains of a virus type found in tests on laboratory animals do not show up in similar tests in humans.

Science News Letter, April 18, 1953

ASTRONOMY

Universe Twice Size

➤ STRIKING EVIDENCE supporting the idea that the universe is twice the size previously calculated has been obtained by University of California and Australian astronomers.

Results are announced by Dr. Gerald E. Kron of Lick Observatory and Dr. S. C. B. Gascoigne of Australia's Commonwealth Observatory to the Astronomical Society of the Pacific.

Evidence was obtained electronically in studies in Australia of globular clusters in the Magellanic Clouds.

Globular cluster magnitudes are one of the chief yardsticks of stellar distances, and the intergalactic distance scale is based on the Magellanic Clouds.

The astronomers found magnitudes of clusters in the clouds too faint if the present distance scale is accepted. However, if the clouds are twice the accepted distance from our galaxy, that would account for the faintness of the clusters. They conclude that if the Magellanic Clouds are twice the accepted distance, the other extra-galactic objects must be similarly twice as far away. That would double the size of the known universe. The original theory that this is so was formed by Dr. Walter Baade of Mount Wilson Observatory.

Evidence for a larger size and older age of the universe based on photometric globular cluster magnitudes was also reported by Dr. Harlow Shapley of Harvard to the American Astronomical Society in December. (See SNL, Jan. 10, p. 19.)

Science News Letter, April 18, 1953

MARINE BIOLOGY

Whale's Milk Richer In Fat and Protein

➤ TO DISCOVER how whale's milk compares with cow's milk, first milk a whale.

And that is what the whaling vessels Southern Venturer and Southern Harvester did eight times for Dr. J. C. D. White of the Hannah Dairy Research Institute, Kirkhill, England. They collected milk from the mammary glands of two blue whales and six fin whales during the process of cutting the blubber from the carcasses.

The milk, which had the consistency of heavy cream, was white or pale cream in color, Dr. White states in *Nature* (April 4). It had a faint fish-like odor. When analyzed, it was found to be much richer in fat and protein than cow's milk, but contained less lactose sugar.

Because international regulations forbid the killing of whales with suckling calves, it is only rarely and accidentally that lactating specimens are taken. From 1948 to 1952, in which time the Southern Harvester and Southern Venturer took between 16,000 and 17,000 whales, only 24 lactating whales were killed.

Science News Letter, April 18, 1953

PATHOLOGY

Unusual Lung Tumors Chiefly Affect Women

➤ ACCIDENTAL DISCOVERY of 20 cases of unusual, very small lung tumors that chiefly afflict women at an average age of 57 was reported by Dr. John T. Prior of the State University of New York Medical Center, Syracuse, N. Y., at the meeting of the American Association of Pathologists and Bacteriologists in Chicago.

Only 13 other cases of this type of tumor have previously been reported.

Malignant tumors, or cancers, of the lungs chiefly afflict men.

The tumors Dr. Prior reported are not, in his opinion, cancerous, although those who have previously studied them think they are.

Dr. Prior discovered the 20 he reported in examinations of autopsy material and of material removed during surgical operations. The tumors do not appear to be associated with any co-existing lung disease, although about one-fourth the patients had bronchiectasis.

Science News Letter, April 18, 1953

PHYSICS

Acousto-Electric Effect Discovered in Crystals

➤ PREDICTION OF the discovery of a new acousto-electric effect, by which electricity is generated by sound, is made by Dr. R. H. Parmenter of the Massachusetts Institute of Technology, Cambridge.

By exploring theoretically what happens when a crystal, such as in sodium or germanium, has a longitudinal acoustic wave travel through it, Dr. Parmenter concludes that it should be possible to measure the generated current, which is dependent on the power but not the frequency of the sound.

The new results may help explain some of the effects being obtained with semi-conductors. The research is reported to the American Physical Society's *Physical Review* (March 1).

Science News Letter, April 18, 1953

NUTRITION

Fresh Frozen Bread

Better tasting, cheaper bread that can always be served fresh expected from development of frozen product. The bread is frozen after baking, then stored in deep freezers.

➤ BREAD THAT tastes better and costs less will be on just about every American breakfast and dinner table in five years.

Starting now, bread with fresh out of the oven flavor will be available in many areas. The price drop probably will not come until later.

The secret of this better and cheaper bread is freezing. The first frozen bread to go on the market will be that made by Arnold Bakers, Inc., of Port Chester, N. Y.

"No one should ever have to eat a slice of stale bread again," Paul Dean Arnold, president of the company, declared in New York.

Although Arnold is apparently the first company to put frozen bread on the market, other companies, and your local home town baker, can do the same, Philip Talbott of the U. S. Department of Agriculture told SCIENCE SERVICE.

"I prophesy that frozen bread will be common in five years," he said.

Arnold Bakers got the idea of freezing bread from Rear Admiral Richard E. Byrd, U.S.N. Ret. He found on his last Antarctic expedition that bread left in a hut under 20 feet of snow was perfectly edible four years later.

The present squabble over whether or not chemical softeners and fresheners should be put into bread may be settled by this new development.

The greatest flavor loss and staling of bread takes place in the first 12 hours after it is baked. But with present methods of distribution, bread is at least eight hours and may be 40 hours old before it gets to the consumer's table.

This problem of freshness has kept Arnold Bakers from distributing their bread to more than 22 states. Now they will freeze it immediately after baking and distribute it all over the nation in refrigerated trucks and store it in deep freeze terminals.

Dealers can keep the bread frozen in their deep freezes. The housewife can buy a week's supply at a time, as she now buys most other food supplies, and keep it in her deep freeze or refrigerator until used. Slices from the frozen loaf can be put right in the toaster. For sandwiches, the bread can be thawed at room temperature in the kitchen. Hot bread for dinner can be had by putting the loaf in the oven to thaw and heat.

Lower costs are expected because bakers will not have to work overtime and on holidays, dealers will eliminate the double bookkeeping now needed for checking in fresh bread and checking out stale, and vast quantities of bread that now have to be discarded because of staleness will be saved.

Science News Letter, April 18, 1953

ASTRONOMY

Prompt "Saucer" Reports Urged in Meteor Study

➤ ALL REPORTS of flying saucers can be explained "certainly or plausibly" if they are received promptly, states Dr. C. C. Wylie, astronomer at the State University of Iowa, Iowa City.

He is making a study of meteors that are bright enough to cast shadows. This work has resulted in his receiving dozens of reports from people throughout the country on "saucers" and other strange lights.

To get accurate records of the meteors, descriptions must be obtained quickly, Dr. Wylie reports to the Astronomical Society of the Pacific. A typical shadow-casting meteor is described as a ball of fire with a tail; the ball of fire being rounded in front and shaped like a pear or light bulb.

The color reported for meteors varies from blue to reddish, with blue-green or green being most common. An 80-year-old report on meteors also states that green was the color then most often observed.

Science News Letter, April 18, 1953

HORTICULTURE

Australian Grass Green In Winter and Drought

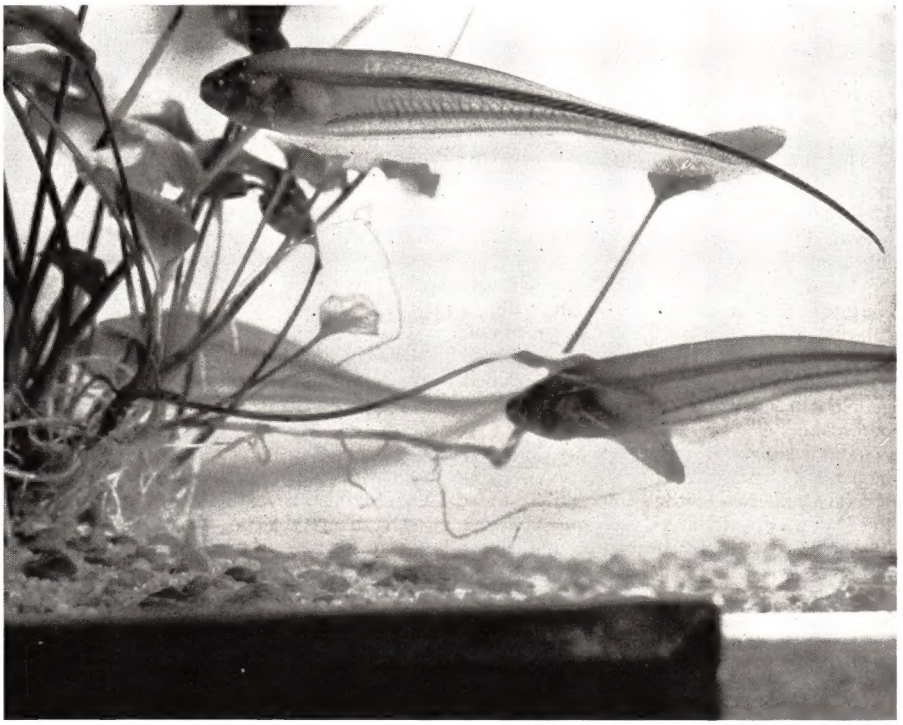
➤ THE ANSWER to a backyard gardener's prayer, a grass that will remain green under conditions of drought as well as cold, has been found by scientists at the University of California at Los Angeles.

It is a brilliant green sedge from Queensland, Australia, known in Hawaii as "McCoy grass." It has remained green in a test plot under summer conditions with irregular watering and during winter months at temperatures down to 25 degrees Fahrenheit.

Certain sedges have been introduced in California before, but these particular varieties tended to become discolored in winter. Other varieties have been difficult to mow or have shown aggressive weedy tendencies.

The Australian variety, technically *Cyperus gracilis,* can be mowed with an ordinary hand lawn mower.

Science News Letter, April 18, 1953



KNIFE FISH—These transparent fish from the Upper Amazon swim on their sides at times while rubbing against the bottom and plants with a motion like sharpening a knife. They are on view at the National Zoological Park.

NUTRITION

Keeping Time For Foods

➤ MANY HOUSEWIVES these days do all the family marketing once a week. They save time this way, and often money, since they can take advantage of week-end special prices.

They may wonder, however, how long the perishable foods will keep their good quality in the home refrigerator. Fixed answers cannot be given because the condition of the food and the temperature and humidity of the refrigerator all may affect its keeping. But nutritionists of the U. S. Department of Agriculture have prepared a table which should help many homemakers.

Milk, this shows, should be kept at 45 degrees Fahrenheit and used within three days for best quality. Eggs should be kept a little cooler, 42 degrees, and used within seven days for best quality, though their probable storage life is two to six weeks.

Hard cheese, tightly wrapped or in a closed container, will keep for months. Surface mold may be trimmed off. Soft cheese, however, will keep only one to two weeks. It should be kept in a closed container in the coldest part of the refrigerator.

Fresh fish should be used within one day for best quality, and poultry within two to three days. Keep these perishables loosely wrapped and at refrigerator temperatures of 32 to 35 degrees.

Use ground meat in one day, liver and variety meat in two days and fresh meat cuts in three to six days. Store these loosely wrapped at 38 degrees. Storage time for pork cuts is somewhat shorter. Sliced cold cuts should be wrapped in semi-moisture proof material such as waxed paper, stored at 38 degrees and used within six days for best quality.

Sliced bacon should be used within seven days for best quality, although it has a storage life of probably three to four weeks. For tender cured hams, use half ham within seven days, whole ham within 10 days. Probable storage life for the half ham is three to four weeks, for the whole ham six weeks. Corned beef should be used within six days. Smoked tongue probably can be stored five to seven weeks and sliced dried beef four to six weeks. All these should be stored at 38 degrees.

Science News Letter, April 18, 1953

PSYCHIATRY

Mentally Sick Not Violent

➤ MANY PEOPLE have the idea that mentally sick persons are violent or overactive. Actually very few of them are. Most of the mentally sick are quiet, unexcited people and only a very small percentage is dangerous.

This is one of the facts about mental illness that the National Association for Mental Health would like everyone to know. Other facts the association is teaching are:

Mental illness is not hopeless. On the contrary, almost all severe mental illness can be benefited by hospital treatment. Mental illness seldom comes on suddenly. There are usually early signs which trained people can recognize long before an actual outbreak.

Mental illness is not the same thing as neurosis. Mental illness is a name covering several sicknesses of the mind which affect the way a person thinks, feels and behaves. The medical term for serious mental illness is psychosis. The legal term is insanity.

People suffering from psychosis live in imaginary worlds of their own which have little relation to the real world. These mentally sick people may think they hear voices, or that their food is poisoned, or that everybody is out to "get" them. They may be very depressed or in a state of great excitement. They may think that a terrible thing is going to happen to them or that they have committed a horrible crime for which they are being punished.

A neurosis, or psychoneurosis, is a type of emotional illness that interferes with a person's happiness and efficiency. Neurotic people feel that they are not loved; they feel guilty, inferior and inadequate without reason; they have an almost constant sense of dread and fear. All of us have a little of some of these feelings but the neurotic person has them to a greater degree most of the time.

Science News Letter, April 18, 1953

ENGINEERING

Control of Climate Is Purpose of Space Flight

➤ CONTROL OF the earth's climate is the most important purpose of space flight and the establishment of a man-made satellite.

Dr. Heinz Haber, University of California at Los Angeles engineer, envisions the conquest of space as a project worthwhile mainly in terms of man's effort to conclude the conquest of his own planet.

"The establishment of a man-made satellite from which climate might be controlled is the real endpoint of space flight," Dr. Haber says. "Such a project is one hope that man will be able to retrieve some of the resources he is so wantonly wasting today."

Outside of historical and scientific significance, man would gain little from expeditions to other planets, Dr. Haber states in his new book, "Man in Space." Among the nine planets of the solar system only the earth is fully equipped to be the homestead for higher forms of life.

"The engineering accomplishments of man in regard to space flight may be unlimited," he adds. "But the real limit is man himself. The conquest of space will depend primarily upon his ability to overcome the physiological problems associated with its hostile environment. Such problems as oxygen supply, weightlessness, extreme heat and cosmic radiations are formidable but not insurmountable."

Science News Letter, April 18, 1953

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INSULIN ASSAY — Dr. Munevver Yennermen, endocrinologist at the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Md., making an assay of insulin level in a mouse.

BIOCHEMISTRY

Pills Protect From Rays

Scientists are busy looking for chemicals that will protect body from damaging radiation, although exact method by which the death blow is dealt is not known.

➤ PILLS WHICH will protect people against the deadly radiation of A-bombs are in the works for the future, experts in radiation have indicated.

Already a substance called cysteine protects mice against a lethal dose of X-rays. Dr. Harvey M. Patt of the Argonne National Laboratories, Chicago, said that, while it is not yet proved for any other species, including man, if he knew an A-bomb attack was imminent, he would swallow about two ounces of cysteine, a salty, bitter tasting substance.

Other scientists attending the radiation session of the American Physiological Society meeting in Chicago looked to other substances to give mass protection. Drs. Leonard J. Cole, Maurice C. Fishler and Victor P. Bond of the Naval Radiological Defense Laboratory, San Francisco, have found, pretty definitely, that the nucleus of cells of mouse spleen will protect other mice from deadly doses of radiation.

Their studies came out of a scientific argument over just what in spleens protects against radiation. It has been known for some time that the spleen had an important part in this protection. Some scientists believed that the live cells in the spleen were the factor. Others thought that certain chemicals which made up the spleen cells might do the job.

Dr. Cole and his associates divided the different parts of the cell from each other by homogenizing mouse spleen. They got material which they believed was essentially free of living cells. They found that protection was associated with the nucleus and not with the whole living cell. Other studies at the University of Chicago and at the National Institutes of Health, Bethesda, Md., tend to indicate that it is not living cells which provide the protection, the scientists said.

Even before mass protection is possible, scientists said, protection for those working around atomic power plants might work. For instance, Dr. Patt said, crews of atomic powered airplanes might not need so much shielding when an effective substance is developed. This would make it easier to get an A-powered plane off the ground.

Despite confidence in a future protective substance, the scientists still do not know how radiation deals its death blow. Huge doses of radiation, far above the lethal amount, seem to show that a poisonous substance is released in the body, Drs. Howard L. Andrews and Kirkland C. Brace of the National Institutes of Health told the meeting. The general opinion was that different things happened, depending on the kind of dose of radiation given, the manner of exposure and the time factor.

Science News Letter, April 18, 1953

BIOCHEMISTRY

Fat in Diet Protects From Radiation Damage

➤ A SVELTE figure in the atomic age is out.

Scientists have discovered that fat in the diet is a protection against atomic bomb radiation. Salad and cooking oils, margarine, mayonnaise and lard contain essential fatty acids which kept laboratory rats alive, even when they were subjected to critical doses of X-rays similar to those given off by an atomic blast.

The conclusion is that the people of the western world, who eat much more of the fat-containing foods than do those behind the Iron Curtain, are better protected against an A-bomb attack. People of the Orient do not eat foods containing such great amounts of fat.

Drs. Harry J. Deuel, Jr., dean of the University of Southern California Graduate School, and Amber L. S. Cheng, graduate student from China, tested 5,000 rats over a three-year period to discover the role of fatty acids in protection against radiation. They reported their results to the American Institute of Nutrition meeting in Chicago.

They also discovered that nothing, including the greatest amounts of mayonnaise on salads, would protect against fatal doses of X-rays given to the rats. This meant to the experimenters that only those far enough away to survive the concussion of the A-bomb would benefit from having had fat in their diet.

Dr. Deuel said that this does not mean that a person must be fat or overweight. However, he must have essential fatty acids in his diet.

Science News Letter, April 18, 1953

BIOCHEMISTRY

Chemical Helps Fight A-Bomb Burst Effects

➤ VICTIMS OF radiation from an A-bomb explosion may find protection against two major hazards—tendency to bleed and increased susceptibility to infection—with a chemical compound called protamine sulfate.

This combination of a protein and a salt of sulfuric acid at least works on rabbits which have been subjected to large doses

of X-rays. The rabbit experiment was reported to the American Physiological Society meeting in Chicago by Drs. H. G. Kupfer, John B. Parker and Rolin Meador of the Medical College of Virginia, Richmond.

Cause of the tendency to bleed is interference by radiation with the blood clotting mechanism. One injection of 45 milligrams of protamine sulfate 48 hours after the rabbits were irradiated prevented this interference with the blood clotting mechanism. When the compound was injected before the X-rays were directed at the rabbits, alteration of the blood clotting mechanism was reduced markedly, but not altogether eliminated, the scientists reported.

Irradiation seems to prevent the formation of infection-killing antibodies in the blood of humans as well as animals, the experimenters said. Again protamine sulfate comes to the rescue in irradiated rabbits. Red blood cells of sheep were injected in the irradiated rabbits. With protamine sulfate injected 48 hours after irradiation, the rabbits were able to produce antibodies to fight the foreign material at a rate significantly higher than that of a control group of rabbits. Protamine sulfate injected before irradiation does not do as good a job on antibody production.

Science News Letter, April 18, 1953

PUBLIC HEALTH

Poor Sanitation Aids In Immunity to Polio

➤ THE POOR sanitation and hygiene standards of many countries probably help keep down the rate of badly paralyzing infantile paralysis.

This seeming paradox was discovered when large numbers of Philippine monkeys were fed small daily doses of poliomyelitis virus. More than 50% of them, after having been fed small doses for 90 days, developed the non-paralyzing mild form of infantile paralysis. The rest proved to be markedly resistant to paralysis after swallowing large doses of virus.

However, a control group that did not receive the small doses for the 90-day period was different. When they were fed a large dose of virus, 62% of them developed paralysis.

"These results indicate," Drs. Albert B. Sabin and John Winsser of the University of Cincinnati College of Medicine told the American Association of Immunologists meeting in Chicago, "at least one of the ways in which populations with low standards of sanitation and hgyiene may acquire a high degree of immunity to poliomyelitis at a relatively low cost in paralysis."

Science News Letter, April 18, 1953

If a human family ate its *food* in proportion to a family of birds, the daily grocery list would include 50 loaves of bread, 25 pounds of hamburger, 30 doughnuts, 10 pounds of spinach, 6 heads of lettuce and a gallon of ice cream.

MEDICINE

Drug Halts Blood Cancer

➤ A DRUG that halts the blood cancer, leukemia, at least temporarily, was announced at the meeting of the American Association for Cancer Research in Chicago.

The drug is a new chemical called 6-mercaptopurine. It is given by mouth in tablet form, like an aspirin tablet.

It was synthesized by Drs. George H. Hitchings and Gertrude B. Elion of the Wellcome Research Laboratories, Tuckahoe, N. Y., and tested for anti-leukemia activity by Drs. Joseph H. Burchenal, David A. Karnofsky, M. Lois Murphy, Rose-Ruth Ellison and C. P. Rhoads of Memorial Center for Cancer and Allied Diseases, New York.

More than 100 patients have so far been given the new drug. Of 45 children with acute leukemia, 14 showed temporary disappearance of the disease for one to six months. Another 11 were substantially improved although the disease could still be detected by laboratory methods. Of these 25 children, 11 had previously been treated with one of the antifolic drugs, and had either been resistant to these drugs in the beginning or became so during treatment.

Of 18 adults with acute leukemia, three obtained complete though temporary regression of the disease from the new drug.

The supply of the chemical is limited and for this reason it is being distributed to a small group of clinical investigators by Wellcome Research Laboratories.

The chemical is considered particularly interesting because its mechanism of action is different from that of other agents used in treatment of human cancer. It is thought to damage the cancer cell by interfering directly with its manufacture of nucleic acids, vital components in cell reproduction and function.

Science News Letter, April 18, 1953

MEDICINE

New Schizophrenia Aid

➤ A NEW experimental treatment for schizophrenia which may prove to be better than electric shock treatment has been developed.

The treatment uses a chemical cousin of isoniazid, the new TB wonder drug, and flashing lights in the eyes to produce convulsions. A group of psychiatrists and pharmacologists at the University of Illinois College of Medicine tried the treatment on 37 patients, all of whom had been hospitalized for more than two years, one as much as ten years. They had not been helped by previous treatment such as insulin coma, metrazol convulsions or electroshock therapy.

Six of the patients have now been discharged after the new treatment, Dr. Carl C. Pfeiffer, professor of pharmacology at the university, reported to the American Society for Pharmacology and Experimental Therapeutics meeting in Chicago.

Fifteen of the patients, including the six discharged, showed remission of the mental disease. Eight of these 15 have had relapses, but all of 37 had some improvement.

A control group of 39 patients received similar treatment except that in place of the drug, semicarbazide, a harmless placebo pill was given. Of these, only two showed any improvement at all.

Now the group is conducting experiments to determine whether this new treatment is better than electroshock, so far the most successful in the therapy of schizophrenia. The treatment lasted four weeks and only eight to ten convulsions were induced in each patient.

A large dose of the chemical makes the patient susceptible to a convulsion when a light is flashed into his eyes 14 to 20 times. The convulsion comes on slowly and muscular rigidity occurs much more slowly than with electroshock therapy.

The group who did the work with Dr. Pfeiffer consists of Drs. Richard W. Reilly, Marianne W. Gunther, Joseph Tienstra, Mahmood Sajjadi, Paul S. Weiner, Arthur Ellerd, and Theodore Tausig of the university and Manteno State Hospital, Manteno, Ill.

Science News Letter, April 18, 1953

MEDICINE

Coat Over Ulcers New Protection Method

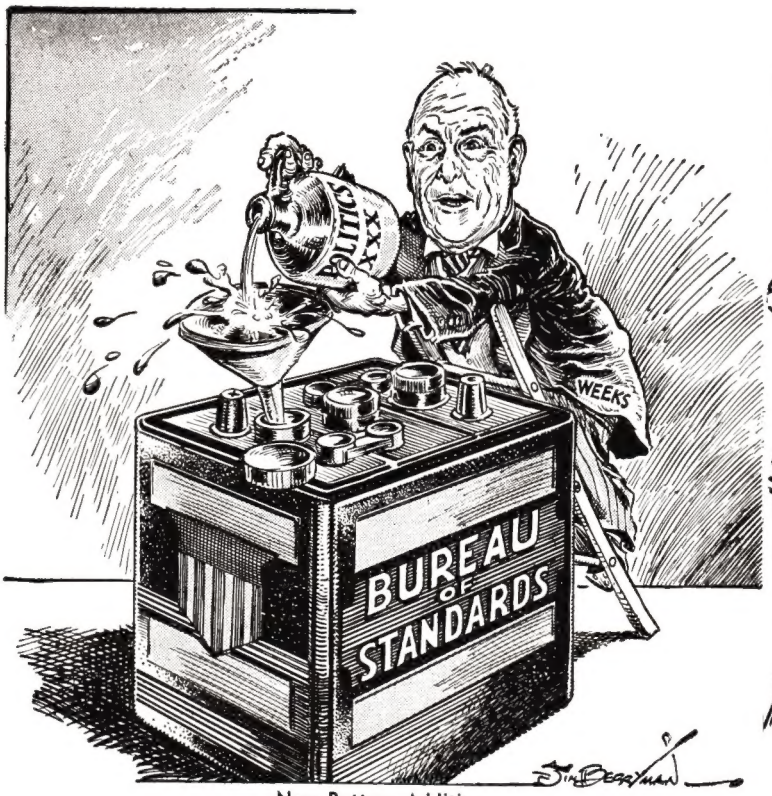
➤ PROTECTION AGAINST ulcers—the disease of American civilization—might be achieved by putting a coat over the ulcers. It works in rats and guinea pigs, two scientists reported at the Chicago meeting.

Drs. Mark Nickerson and Charles F. Curry of the department of pharmacology, University of Michigan School of Medicine, said that this kind of protection has been given little attention compared with the attention given other kinds of treatment.

However, they said, feeding a suspension in water of several kinds of siloxanes, put a tough coating over eroded areas of the stomach and duodenal tract.

This afforded almost complete protection against gastric erosion, the scientists said, while control animals died within five days. The ulcers were artificially produced by injecting histamine.

Science News Letter, April 18, 1953



New Battery Additive

—Berryman in the Washington Evening Star

"Go Away, Boy — You Bother Me"

—Herblock in the Washington Post

GENERAL SCIENCE

Standards May Be Raided

Scientists at National Bureau of Standards, heretofore held by high sense of public duty, may become reluctant to refuse tempting job offers received from industry and colleges.

➤ PERSONNEL RAIDS by industrial and college research laboratories upon the National Bureau of Standards will have more chance of success as the result of lowered morale due to the dismissal of Director A. V. Astin.

Always vulnerable because industry and even colleges can often offer higher salaries, the sense of public service and contribution to the defense effort has served to hold most scientists at the bureau despite attractive opportunities elsewhere.

Now fear of insecurity and disgust at the possible further entrance of political pressure into this scientific bureau combine to make the scientists look more favorably upon outside offers.

More than 50 top level bureau scientists have submitted undated resignations, threatening to quit unless the Astin affair is given a thorough investigation.

Although Secretary of Commerce Weeks has appointed a committee to "evaluate the present functions" of the Bureau of Standards, such action does not necessarily mean the investigation of the ouster of Dr. Astin as Bureau of Standards head.

The committee's chairman is Dr. M. J. Kelly, president of Bell Telephone Laboratories. No other appointments have as yet been announced.

And scientists are mystified because Mr. Weeks did not appoint such a committee, or consult the visiting committee of the National Bureau of Standards or the National Academy of Sciences concerning the controversy before Dr. Astin's forced resignation.

The Academy, a quasi-official agency chartered by Congress in 1863 at the request of President Lincoln, was set up to be the scientific adviser to the government.

It is considered by scientists as the final board of arbitration on scientific disputes. In its first year of existence, during the Civil War, the Academy set up six investigating committees. One of them concerned the value of continued publication of certain navigation charts and sailing directions, a controversial issue at that time.

"If all examination is refused, the good is confounded with the bad, and the government may lose a most important advantage. If a decision is left to influence, or to imperfect knowledge, the worst consequences follow."

So said Prof. Alexander Bache, in 1851, in urging the establishment of a scientific institution to "guide public action in reference to scientific matters."

The Senate Small Business Committee announced on April 9 that it plans to look into the "fairness" of the tests during hearings in May, but will not investigate the reasons why those tests got Dr. Astin ousted as bureau chief. This group originated the request for the report on AD-X2 by MIT scientists.

Senator Edward J. Thye (R.-Minn.), committee chairman, stated that the committee was "not out to injure anyone," and wanted to make sure that the Bureau of Standards "is not injured. That is one agency above all that the public must have confidence in," he said.

Sen. Thye also stated that the committee's concern is "to make sure that small business receives fair treatment in its dealing with government agencies."

The committee is expected to call in other witnesses after hearing Dr. Astin and perhaps other bureau scientists. These would include industrial users of the product, Massachusetts Institute of Technology scientists and armed services' representatives.

It is believed also that Jess Ritchie of Oakland, Calif., manufacturer of AD-X2, will be called on to testify.

AERONAUTICS

Alaskan Flying as Bad As in Rocky Mountains

➤ FLYING IN Alaska, scene of four Air Force disasters recently, is much like flying in the Rocky Mountain region of the United States.

But the beguiling Arctic poses a number of problems that can lure the uninitiated pilot to his destruction.

Formerly stationed in the Arctic, a seasoned Air Force pilot told SCIENCE SERVICE that mountain ranges can twist radio beams dangerously. The beams carry coded letters to help pilots figure out their positions on a map. When the beams are twisted, the pilot might make a mistake that could mean disaster.

Weather along the Seattle-Anchorage route is "pretty rugged" at times. It is even worse along the Aleutian chain. Stiff winds blow almost continually there and can reverse direction in as little as 20 minutes.

Icing problems are bad in the vicinity of Elmendorf Air Force Base at Anchorage. Moist air meets cold temperatures there. Ice can form on the planes and can overburden them.

Whether these conditions were responsible for the four recent crashes of all-weather F-94 jets remains for the investigators to determine. But Air Force officials clamped the lid on instrument flying of the F-94s in Alaska until they can tell whether instruments were at fault.

Three of the jets disappeared from Elmendorf in the week beginning March 31. A fourth crashed on the landing field.

Science News Letter, April 18, 1953

MEDICINE

Gamma Globulin Helps Fight Smallpox in India

➤ A BLOOD serum fraction that may provide protection against smallpox and help in treating victims of the disease is now under trial in India, where a quarter of a million cases are reported each year.

The research project is being conducted by Dr. C. Henry Kempe, of the University of California School of Medicine, with the help of Indian health authorities.

Dr. Kempe recently took with him to India the first samples of a gamma globulin preparation with antibodies to smallpox.

Gamma globulin used against polio and measles can be prepared from pooled blood, since these diseases are widely contracted in mild form in the American population. Few Americans have smallpox, however, and antibodies built up by vaccination are not ordinarily potent enough to yield a powerful gamma globulin.

Dr. Kempe's gamma globulin was prepared from blood donated by soldiers who had recently had good "takes" on smallpox vaccinations. This assured strongly active smallpox antibodies.

In India, Dr. Kempe used the gamma globulin on individuals with severe cases of smallpox and also on members of families who had been exposed through contraction of the disease by one member of the family. Indian authorities will forward blood samples and other data to Dr. Kempe who has returned to San Francisco. Results will be known in two months.

Dr. Kempe said that eradication of the disease in India and in some other countries is not as simple as it is here. In India, undernourishment, greater virulence of the disease agent, and frequent exposure and infrequent vaccination all make for high disease incidence and mortality.

Science News Letter, April 18, 1953

CHEMISTRY

Billionth Part Impurity Detected by Neutrons

➤ A MILLIONTH or a billionth part of impurity in a metal can be detected easily by changing it into something else in the atomic pile.

A service by which the atomic pile at Oak Ridge, Tenn., may be put at the disposal of chemists for analytical work is reported by Drs. G. W. Leddicotte and S. A. Reynolds of the Oak Ridge National Laboratory. Samples of the materials to be tested are put into the pile for a short time for irradiation. The neutrons present in the pile cause radioactive changes in the material which write their own autographs on Geiger counters and similar instruments.

Because radioactivity of each substance has its own characteristic length of life, measurements taken at different times can sometimes distinguish the long-lived impurity from the short-lived metal, according to the Oak Ridge scientists.

A minute amount of manganese in irradiated aluminum continues to give out measurable rays with a half life of 2.59 hours after the radiation from the aluminum has died away. Two-thirds of the chemical elements can be determined satisfactorily by this method, the atomic scientists say.

Science News Letter, April 18, 1953

CHEMISTRY

Food Poisoning Chemical Makes Spores Resist Heat

➤ THE GERM spores that cause food spoilage and food poisoning, such as botulism, contain an enzyme chemical which enables them to resist greater heat than any other living organism.

The chemical, first such ever found in a bacterial spore, is called alanine racemase. Its existence in spores was discovered by University of Illinois microbiologist H. Orin Halvorson and his research associate, Babette Taylor Steward. The enzyme itself was discovered some years ago by another Illinois microbiologist, I. C. Gunsalus, who found it in bacteria that are unable to produce spores.

Science News Letter, April 18, 1953

IN SCIEN

MEDICINE

Test Biologic Products Related to Heart Disease

See Front Cover

➤ THE COUNTER current distribution apparatus being used for the separation and isolation of biologic products related to heart disease is shown on the cover of this week's SCIENCE NEWS LETTER.

Dr. Elwood O. Titus of the National Heart Institute, National Institutes of Health, who is shown in the picture, is conducting studies on the building up of serotonin and related compounds, involved in various aspects of heart disease.

Serotonin, a blood chemical twice as powerful as adrenalin for fighting shock, has also been made synthetically. Crystals of it were isolated from blood platelets in 1948. Serotonin acts to constrict small blood vessels, and therefore is believed to have a blood pressure-raising effect.

Science News Letter, April 18, 1953

GENETICS

Third Type of Twins Thought to Exist

➤ IN ADDITION to identical twins and fraternal twins, a third type of twins may exist.

Dr. Glen Holland, University of California at Los Angeles psychologist, states that "identical twins are thought to result from complete division of a single fertilized ovum, fraternal twins are assumed to be products of multiple ovulation, while the third type may result from fertilization of two cells of a single ovum by different sperm or fertilization of the ovum by a two-headed sperm."

Siamese twins, generally conceded to be identical twins, as a group exhibit more marked difference than non-joined identical twins, Dr. Holland says.

He also reports these oddities:

If you are left-handed or have a tendency to stutter, you are more likely to be the parents of twins than right-handed people or non-stutterers.

Racial stock and the age of mothers are related to twinning. Older mothers are more likely to have twins.

The incidence of twinning among Negroes and Scandinavians is high. It is rare among Japanese and Mediterranean peoples.

Rarity of twinning may be related to practices of certain cultures. For example, prior to the year 1400 twinning was considered as evidence of adultery in Japan, and mother and children were put to death.

Science News Letter, April 18, 1953

E FIELDS

CHEMISTRY

Insecticides Hundred Times Better Are Made

➤ INSECTICIDES A hundred times as deadly as DDT yet non-poisonous to man and animals have been developed by applying a theory as to the working of chemical agents that control insect life processes.

Composed entirely of carbon and hydrogen, without the chlorine that in DDT causes harm to warm-blooded animals, the new insecticides resulted from research by Drs. R. C. Blinn, F. A. Gunther, G. E. Carman, and R. L. Metcalf of the University of California Citrus Experiment Station, Riverside.

An interpretation by Dr. Linus Pauling of the California Institute of Technology of the way enzymes in insects control their growth made possible the chemical building of the new powerful insecticides. Action of these enzyme chemicals can be blocked by materials whose molecules are the right size and shape to fit and hold onto them. The foreign chemical slips into a sort of cavity in the living molecule and stops it dead, as it were. Both size and shape must fit.

In the first issue of the new American Chemical Society's *Journal of Agricultural and Food Chemistry*, the Citrus Experiment Station chemists report one new hydrocarbon that is 100 times as deadly as DDT for the flour beetle, and another that equals DDT in destroying mosquito larvae but is harmless to other species.

Science News Letter, April 18, 1953

MEDICINE

Urge Scientists Make Slower Vaccine Tests

➤ DO NOT try a mass test of vaccine against poliomyelitis. Test it slowly, using human guinea pigs in Allegheny County, Pa., this year. Suspend trials during the polio season this summer to avoid interference with studies. Resume the tests with more and more persons after the polio season is over so that in the summer of 1954 it will be possible to make a controlled evaluation of the vaccine's effectiveness.

This, in effect, is the advice given to Dr. Jonas E. Salk of the University of Pittsburgh by a conference of medical and health authorities headed by Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research, New York. Dr. Salk and officers of the National Foundation for Infantile Paralysis were present at the conference.

Dr. Rivers reports the conference and the advice it gave Dr. Salk in the *Journal of the American Medical Association* (April 4).

"There is every indication," says Dr. Rivers, "that the preparation in question is as safe as any other vaccine now widely used against diseases other than poliomyelitis.

"However, only by gradual extension in ever-increasing groups of persons and in a systematic fashion as herein indicated can this be established with the certainty required before testing the validity of the experimental vaccine against poliomyelitis under epidemic circumstances."

Science News Letter, April 18, 1953

PLANT PATHOLOGY

Anti-Weed Mixtures Fight Poison Oak Scourge

➤ MIXTURES OF the weed killers 2,4-D and 2,4,5-T give promising control over growths of poison oak, report Oliver A. Leonard and Lem Osborn of the University of California College of Agriculture.

Their experiments were begun in 1950, when test plots were sprayed with one to four pounds of weed killer mixtures per acre. These initial sprayings resulted in marked control of stands of poison oak, the scientists said, but later most of the plants developed new sprouts.

Spraying the areas again the following year, however, resulted in a high degree of permanent killing of poison oak.

Spring and early summer were the best times for weed killer treatment, the scientists said, adding that retreatment later in the season was necessary for proper control.

Science News Letter, April 18, 1953

TAXONOMY

Mountain Lion Names Amusin' But Confusin'

➤ EVERYBODY SLIPS up once in a while. Even the electronic "brains" blow a fuse now and then.

In the March 21 issue of SNL, page 179, appeared a picture of mountain lion cubs, with a caption stating that they had "a grandfather that was an Arizona puma and a grandmother that was a mountain lion." The biology writer must have been off fishing when that caption was written. Pumas and mountain lions are quite the same thing.

One of SNL's alert readers in Seattle, however, definitely was not off fishing, and wrote in this comment: "I say the other grandfather was a panther and the other grandmother a catamount. What's more, all of the cubs' kittens will be cougars."

He is right. Mountain lions are known by all these names. He might have added that the mother was a deer tiger and the father a Mexican lion. The cubs themselves are painters, too.

This is why scientists talk in Latin. They call them all *Felis concolor*.

Science News Letter, April 18, 1953

FOREST PATHOLOGY

Dutch Elm Disease Eradication Unlikely

➤ DUTCH ELM disease will never be eradicated from American trees in the opinion of Dr. David H. Marsden, botanist with the University of Massachusetts. This disease has been destroying shade elms in many communities, especially in the New England states.

So, putting aside profitless dreams of exterminating the disease, Dr. Marsden said, America must learn to live with the disease. This involves long-term programs to preserve as many elms as possible, not abandoning them to the ravages of disease, he said.

Dr. Marsden told the case histories of two New England towns, one of which abandoned attempts to control Dutch elm disease, the other which has kept up control over many years.

In the community that maintained control practices, there has been a reduction of more than 50% in the number of diseased trees as compared to the town that abandoned controls.

Emphasis in controlling Dutch elm disease should be placed on a "sustained" program, Dr. Marsden said, since figures show that the disease can spread tremendously in as short a time as two years, when control efforts are slackened.

Science News Letter, April 18, 1953

BIOCHEMISTRY

Cancer Cells Are Less Fussy Than Normal Ones

➤ A BASIC difference between normal cells and cancer cells in the chemical processes called metabolic has been discovered by Drs. Karl E. Paschkis, Abraham Cantarow and Joseph Stasney at Jefferson Medical College, Philadelphia.

Liver cancers in rats have, as a result, been prevented. But the method of doing this would be dangerous to try on humans, states the American Cancer Society which supported the research.

The development of liver cancer in rats, the scientists found, is accompanied by a change in the way the body handles one of its important chemicals, uracil.

Normal cells insist on making their own natural uracil from raw materials. They refuse to take up uracil in their environment. Cancer cells, on the other hand, take up the ready-made uracil.

Chemicals which cause liver cancer apparently combine with uracil in the process of bringing about cancer, the American Cancer Society report states. But when the animals were given a close relative of uracil, thiouracil, cancer did not develop.

However, the cancer society states that "experiments here have shown that it is dangerous to use thiouracil as a preventive of any kind of cancer."

Science News Letter, April 18, 1953

HORTICULTURE

Tough Tests For New Plants

Competition keen in development of new flower and vegetable varieties. Independent research groups, like All-America Selections, put new varieties through tests.

By HORACE LOFTIN

➤ THE ANNOUNCEMENT of newer, brighter, stronger, larger varieties of flowers and vegetables for your garden each year is one of the clearest-cut examples of the constructive competition inherent in the American way of doing things.

Scores of private companies, research centers and individual plant enthusiasts vie with each other to produce flowers and vegetables showing advances over older types in characteristics ranging from color to disease resistance.

The final judge as to the value of new varieties is you, the man or woman who buys the seeds and grows the plants. Many highly-advertised varieties have fallen into oblivion after a single season, when they failed to meet the test of gardeners over the country. But generally, new varieties are tested and grown experimentally by impartial experts for several seasons before their breeders will allow them to be offered to the public.

One of the best known research institutions for testing new flower and vegetable varieties is All-America Selections, with headquarters in Harrisburg, Pa. This institution is an independent, non-profit organization, largely financed by the seed industry itself.

Testing Is Nation-Wide

All-America Selections tests new varieties submitted to it in trial gardens all over the nation—22 trial grounds for vegetables and 18 for flowers. The entries are compared with the best similar kinds already on the market.

After two years of testing, the experimenters from each of the trial grounds, plus several "traveling judges," rate the varieties. If they prove outstanding, they may be awarded the All-America gold, silver or bronze medals. To rate even an honorable mention from All-America Selections, the varieties must be superior.

And so the annual announcement of All-America Selections awards is one of the high spots of the garden enthusiasts' year.

Winner of the 1953 All-America silver medal for flowers was Royal Carpet alyssum, the first new variety of alyssum to come out in 12 years. Bronze medal winner was a new red petunia, Comanche, a true-breeding first generation hybrid. No other flowers and no vegetables were chosen for All-America Selections awards this year.

Royal Carpet alyssum grows only two or three inches above the ground, but each plant spreads a rug of fragrant flowers over an area ten inches in diameter. Spaced about six to eight inches apart, Royal Carpet alyssum plants make an almost solid mat of deep violet blossoms, lasting from spring to the first killing frost. It is ideal for groundcover and edging purposes.

In its shortness and abundance of blossoms, Royal Carpet alyssum is like an older variety, Carpet of Snow, which has white flowers. In color, Royal Carpet is like Violet Gem; but this plant grows six or seven inches tall and its blossoms do not form such a solid sheet of color as do those of Royal Carpet.

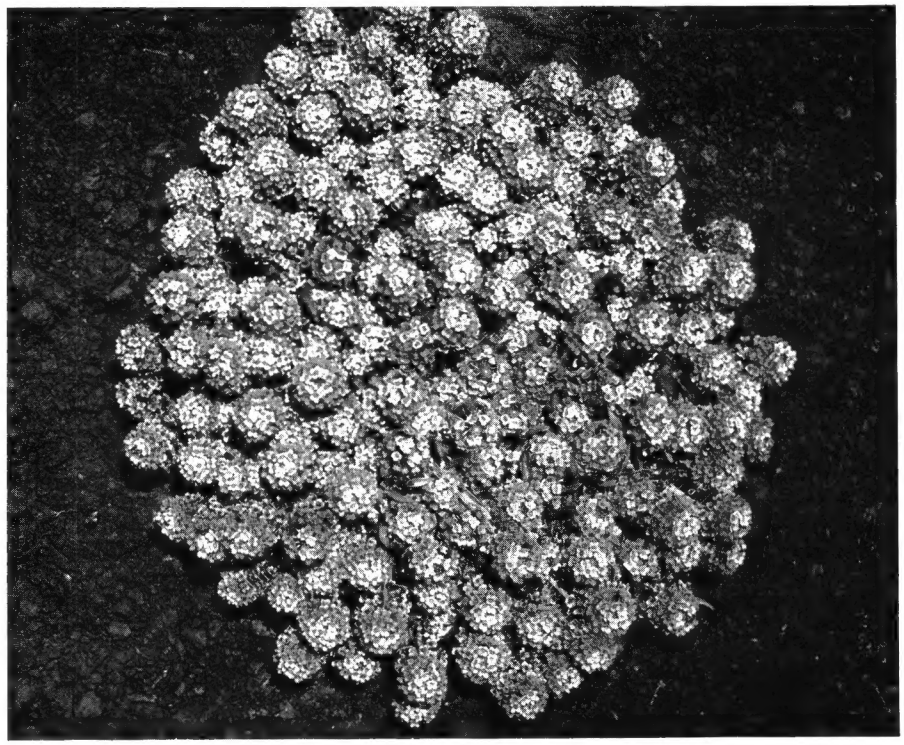
The Comanche petunia, bronze medal winner, marks a distinct advance over the very first red petunia, Fire Chief, winner of the 1950 gold medal. Comanches, as easy to grow as the Fire Chiefs, are somewhat larger and stronger plants and bear more flowers. The blossoms of Comanches are rich scarlet red in color, compared to the more or less rose color of Fire Chief flowers.

Comanche petunias grow about 15 inches tall and resist flopping over with just a minimum of care. Their strong branches are covered with handsome red blossoms from early spring to the return of cold weather.

First Offered This Season

This year is the first season Royal Carpet alyssum and Comanche petunia have been offered to the general public. No entry for an All-America Selections award is put on the market until it has been tested and the results announced. And because of a standing rule of All-America Selections, winning entries are co-introduced to the public by all seed dealers who care to handle the new varieties. This means you can buy Royal Carpet alyssum and Comanche petunia seeds from almost any seedsman.

There is almost always a scramble for seeds of All-America winners their first year out, with the result that stocks are often soon depleted. A bit of good advice



1953 PRIZE WINNER—Royal Carpet alyssum, a new flower variety only two or three inches tall, makes an almost solid mat of deep violet blossoms, lasting from spring to killing frost. It is the silver medal winner of All-America Selections this year.

to gardeners is to shop early for this season's winners.

Winners of past years, however, are generally available in quantity. Flower and vegetable varieties that have received All-America Selections awards usually have a statement to that effect printed on the seed packets. Seed catalogues always note if a variety is an All-America winner in their description of flowers and vegetables.

Last year, 1952, was a big year for prize-winning varieties. The rarely-given gold medal was awarded to two vegetable varieties; one flower and two vegetables took silver medals; two vegetables won bronze medals; and three flowers received honorable mention.

Gold medal winners were the Wade snap bean and the Salad Bowl lettuce. Both were developed by the U. S. Department of Agriculture. Less than a half-dozen vegetables have been honored with the gold medal award in the last 15 years.

Fiesta Cosmos Won in 1952

The Fiesta cosmos won the silver medal as the best new flower variety of 1952. Its petals are striped lengthwise in red and orange, and the plants grow about two feet tall. Fiesta cosmos is one of the easiest garden flowers to grow. It can be seeded directly in place, without need of transplanting, and it is highly resistant to insects and disease.

Honorable mentions were awarded to a dwarf fringed petunia, named Ballerina; Persian Carpet zinnia, with three-inch flowers on bushy plants of two feet height; and a phlox from Japan, the Globe phlox, especially suitable for pot plants, window boxes and rock gardens.

Vegetables also took high honors in 1951. Two of them, Iochief corn and New Hampshire Midget watermelon, won gold medals; two won bronze medals; and four were given honorable mention.

Two new flower varieties received awards that year. Torch tithonia, a bushy, long-stemmed plant with bright scarlet blossoms, won the silver medal. The highly successful Glitters marigold, with large, clear-yellow, chrysanthemum-like flowers, took the bronze medal.

SCIENCE SERVICE *has selected Royal Carpet alyssum, silver medal winner of All-America Selections for 1953, to be included in the new springtime seed kit of* THINGS *of science. Besides the alyssum, four garden vegetable varieties were chosen for the annual seed unit.*

This kit is available to readers for 75 cents. Write Science Service, 1719 N St., N.W., Washington 6, D. C., and ask for the 1953 Seed Unit. Past kits, containing All-America Selections winners, are still available, too.

Science News Letter, April 18, 1953

The quality of *tomatoes* that ripen after harvest can be improved in shipping if the temperature is held between 50 and 65 degrees Fahrenheit.

Planets travel at different speeds in different parts of their orbits.

A model of the Navy's *atomic submarine* power plant now is in test operation.

Time-lapse movies are revealing in great microscopic detail the behavior of the *cancer cell.*

It takes two years to gear a single new *aircraft plant* for jet fighter production.

A powdered *orange juice* has been developed that dissolves in ice water.

Swarming *termites* bite wings off each other before crawling into the ground where they may start new colonies.

Encyclopedia of

ABERRATIONS

A PSYCHIATRIC HANDBOOK

Edited by EDWARD PODOLSKY, M.D.
State University of New York Medical College

With a Foreword by ALEXANDRA ADLER, M.D.
New York University College of Medicine

This is the first systematic exposition of human aberrational behavior. In this volume over fifty eminent psychologists and psychiatrists discuss all types of aberrations, with particular emphasis on their psychodynamics. The material is arranged in alphabetical sequence for easy reference.

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Anxiety, dental
Aphasia and linguistics
Autism, infantile
Auto-punishment
Benzedrine, addiction
Bestiality
Body image disturbances
Boredom
Brontophobia
Cacodaemonomania
Chloral delirium
Choreomania
Clairvoyance
Claustrophobia
Cocaine, addiction
Crime, neurotic
Criminality
Depression
Devil worship
Dream murders
Dysprosody
Ecouteur
Ecstasy, artificial
Erotographomania
Exhibitionism
Family tension
Fellatio
Fetishism
Folie a deux
Frigidity
Frottage
Gambling
Gammacism
Gelasmus
Gustatory sweating
Gynephobia
Hair-plucking
Hallucinations
Haptodysphoria
Hashish, addition
Head banging
Heroin, addiction
Heterolalia
Homosexuality
Hysteria
Iconolagny
Illusions
Inferiority feelings
Intellectual malfunctioning
Kainotophobia
Kakorrhaphiophobia
Kleptomania
Language frustration
Laughter, fits of
Lesbianism
Logorrhea
Lying
Malingering
Masochism
Menstrual anomalies
Mescaline intoxication
Murderer, mind of
Mutism
Mysophobia
Narcolepsy
Necrophilia
Negativism
Nudism
Nymphomania
Ochlophobia
Onanism
Opium, addiction
Pavor nocturnus
Pessimism
Pethidine, addiction
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• Books of the Week •

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

AFRICA: A Study in Tropical Development—L. Dudley Stamp—*Wiley,* 568 p., illus., $8.50. Reviews the available resources of the entire continent and surveys the obstacles which stand in the way of their full development.

BIBLIOGRAPHY ON INDUSTRIAL RADIOLOGY, 1950-1952 — Herbert R. Isenburger—*St. John X-Ray Laboratory,* 18 p., paper, $2.00. Fourth supplement to "Industrial Radiology."

BIBLIOGRAPHY ON X-RAY STRESS ANALYSIS: With Subject Index—Herbert R. Isenburger—*St. John X-Ray Laboratory,* 2nd ed., 20 p., illus., paper, $4.00. Contains some information on X-ray method as well as 311 references.

CHEMISTRY AND METHODS OF ENZYMES—James B. Sumner and F. Fred Somers—*Academic Press,* 3rd ed., 462 p., illus., $7.50. An introduction to enzyme chemistry for advanced students and research workers.

THE COMMON SENSE OF SCIENCE—J. Bronowski—*Harvard,* 154 p., $2.00. The essential nature of science, how it affects us, and how its methods can be used in all we do.

THE COMPOSITION AND ASSAYING OF MINERALS—John Stewart-Remington and Wilfrid Francis—*Philosophical Library,* 127 p., illus., $5.50. A laboratory textbook telling how to identify and assay ores and minerals, relating especially to the chemical composition of minerals.

DOWNY WOODPECKER — Paul McCutcheon Sears—*Holiday House,* 44 p., illus., $2.00. The story of the life of a woodpecker throughout all four seasons.

THE EASY DRAWING BOOK—Peter White—*Sterling,* 126 p., illus., $2.50. Shows the pre-school child and primary grade student shapes and features of things, and how to draw them.

FINAL APPROACH AND LANDING: A Condensed Record of Discussions of Factors Affecting Final Approach and Landing, Held During Fifth IATA Technical Conference at Copenhagen in May, 1952—*International Air Transport Association,* 142 p., paper, $1.75. Discussions of electronic and visual aids for pilots in achieving safe landings.

FLOWER BOX SURPRISE — Gertrude Blane—*Julian Messner,* 63 p., illus., $1.60. This story of growing plants in the city brings out the essential conditions for plant life. Ages 8-10

HIGHWAY-MATERIALS SURVEYS—Highway Research Board—*National Academy of Sciences,* 114, p., illus., paper, $1.50. Investigates the problem of obtaining suitable aggregates and granular materials for highway-construction purposes.

HOMESTUDY COURSE FOR CIVIL SERVICE JOBS—David R. Turner—*Arco,* 278 p., illus., $4.95. Presents the essential features of the U. S. Civil Service system with samples of examination questions.

HOUSEHOLD STORAGE UNITS—Helen E. McCullough—*Small Homes Council, University of Illinois,* Cir. C 5.1, 12 p., illus., paper, 10 cents. Suggests and shows the use of 20 space-saving, sectional storage units.

THE HUNGRIEST ROBIN — Peter Thayer—*Julian Messner,* 63 p., illus., $1.60. Brings out the relationship of an animal to its environment. Ages 7-10.

THE LOST AND THE FOUND: The Story of Eva and Laszlo, Two Children of War-torn Europe—Robert Collis — *Woman's Press* (William Morrow), 181 p., illus., $3.50. Describes the rehabilitation of two children from the disease and horror of a concentration camp to health and security in Ireland.

MAN AND THE CHEMICAL ELEMENTS: From Stone-Age Hearth to the Cyclotron—J. Newton Friend—*Scribner,* 354 p., illus., $6.00. The history of the discovery and utilization of the chemical elements.

MAN'S FOODS: Nutrition and Environments in Food Gathering Times and Food Producing Times—Lloyd B. Jensen—*Garrard Press,* 278 p., $4.50. An introductory survey of man's foods from the Paleolithic Epochs to the close of Classical Times. Describes how nutrition influenced man's development.

THE MARVELOUS MAGNET—Harry Sootin—*Julian Messner,* 63 p., illus., $1.60. Brings out the fundamentals of magnetism, and explains how a simple telegraph and a door bell work. Grades 3-5.

NATURAL CHILD SPACING: The Body Temperature Method of Child Planning—M. Edward Davis—*Hanover House,* 124 p., illus., $2.00. Intended to help married couples secure conception or determine the intervals between additions to the family.

THE NATURE OF CREATIVE THINKING: A Monograph—*Industrial Research Institute,* 73 p., paper, $2.00. Proceedings of a symposium covering not only the nature of creative thinking, but how creative activity can be stimulated in the arts and sciences.

OLIVER SOUNDS OFF—Jack Bechdolt—*Julian Messner,* 63 p., illus., $1.60. Explains what sound waves are, why they differ in pitch and how they travel. Ages 8-12.

PHYSIOLOGIC RESPONSES ATTENDING ADMINISTRATION OF ANTIMONY, ALONE OR WITH SIMULTANEOUS INJECTIONS OF THYROXIN—Marian L. Westrick—*Mellon Institute of Industrial Research,* 5 p., paper, free upon request to publisher, 4400 Fifth Avenue, Pittsburgh 13, Pa.

PIGMENT CELL GROWTH: Proceedings of the Third Conference on the Biology of Normal and Atypical Pigment Cell Growth—Myron Gordon, Ed.—*Academic Press,* 365 p., illus., $7.00. Papers covering the endocrinological, pathological, and physiological aspects, etc. of pigment cells.

PLANET X—Mildred S. Kiefer—*Julian Messner,* 63 p., illus., $1.60. Gives basic information on the planets and stresses the value of accurate scientific knowledge in the conquest of space. Grades 4-6.

PSYCHOSOMATIC RESEARCH—Roy R. Grinker—*Norton,* 208 p., $3.50. Believing that psychosomatic research has gone astray, the author offers a blueprint for future research.

THE ROAD AND THE VEHICLE—B. G. Manton—*Edward Arnold* (Longmans, Green), 216 p., illus., $5.75. A collection of data concerned not only with the materials of construction and the principles of design, but also with the vehicles which will use the highway.

SKINNY JOINS THE CIRCUS—Lee Bloomgarden—*Julian Messner,* 63 p., illus., $1.60. A behind-the-scenes circus story that brings out the essentials of a balanced diet. Grades 4-6.

THE TEACHING OF SECONDARY MATHEMATICS—Claude H. Brown — *Harper,* 388 p., illus., $4.00. An account of the historical development, the objectives, subject matter and general problems of the present-day curriculum.

TELEVISION RECEIVER DESIGN: I.F. Stages—A. G. W. Uitjens — *N. V. Philips* (Elsevier Press), 178 p., illus., $4.50. Deals with pentode amplifiers operating in a frequency range between 10 Mc/s and over 100 Mc/s.

A TEXTBOOK OF GENERAL BOTANY—G. M. Smith, E. M. Gilbert, G. S. Bryan, R. I. Evans

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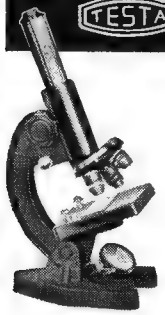

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and J. F. Stauffer—*Macmillan*, 5th ed., 606 p., illus., $6.25. New material on the phylogeny of plants and their physiology has been added to this standard college text.

THOUSANDS OF SCIENCE PROJECTS: Classified Titles of Exhibits Shown at Science Fairs and/or Produced as Projects for the Annual Science Talent Search—Margaret E. Patterson and Joseph H. Kraus—*Science Service*, 46 p., illus., paper, 25 cents, 10 copies $1.00. A stimulus and guide for young people looking for science projects.

WHAT'S INSIDE OF ANIMALS?—Herbert S. Zim —*Morrow*, 32 p., illus., $1.75. An attractive introduction to the world of living creatures.

WHAT'S INSIDE OF ENGINES?—Herbert S. Zim —*Morrow*, 32 p., illus., $1.75. Graphic pictures and brief, simple text combine to give children a clear idea of how all sorts of engines work.

WHEN PEOPLES SPEAK TO PEOPLES: An Action Guide to International Cultural Relations for American Organizations, Institutions, and Individuals—Harold E. Snyder—*American Council on Education*, 207 p., $3.00. Covers cultural relations in the postwar world and suggests ideas for making action programs effective.

WONDERS OF THE WOODLAND ANIMALS: The Family Lives of the Furry Animals—Jacquelyn Berrill—*Dodd, Mead*, 77 p., illus., $2.50. For children of all ages.

Science News Letter, April 18, 1953

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HERPETOLOGY

Teeth Best Technique For Reptile Leadership

➤ SOCIAL CLIMBERS depend on dentition, not diplomacy, to rise in the reptile world. And the socially biggest lizards seem to weigh the most, too.

From observations on a colony of 24 iguanid lizards dumped together in a large terrarium, Dr. Llewellyn T. Evans of the American Museum of Natural History, New York, found that the largest male dominated the group. Lesser males scuttled away when Lizard No. 1 came about, and the females succumbed readily to his dominance.

Once Lizard No. 2 challenged grizzled No. 1, and had his tail bitten off for his ambition. Thereafter, No. 2 spent most of his time buried in the sand, well out of No. 1's way.

But the lesser lizards' day came when No. 1 was removed from the terrarium, Dr. Evans reports in *Copeia* (Feb.). With the old warrior gone, the colony split up into small groups, each led by one of the males. No. 2 then began to assert himself by repeatedly challenging the smaller males.

Civil strife was put to a speedy end, however, by the re-introduction of No. 1. He quickly drew the separate parties back into a united social group, and no lizard attempted to question the old tyrant's authority further.

Science News Letter, April 18, 1953

INVENTION

Menu Ordering Device Gives Pushbutton Service

➤ AN INVENTION that makes ordering a meal in restaurants as easy as playing a jukebox has been devised by Mary Katherine Jones of Louisville, Ky.

Assigned patent No. 2,634,406, her invention includes a pushbutton selector box at each table or at each parking space of a drive-in restaurant. The box resembles those used with remote-controlled jukeboxes.

The menu is listed on the boxes so that each pushbutton represents one item. After deciding what he wants, the customer pushes the buttons beside the items desired. This signals the kitchen directly. The customer's order lights up corresponding items on a kitchen panel.

If the customer changes his mind, he can push a correction button and change his order. This sounds a warning in the kitchen in case the first order is being prepared. If the customer wants the waitress, he can punch her call button. When he has finished a course, he depresses a "finished" button. The bus boy or waitress pushes a "clearing" button when removing all the dishes after the customer has left. This prepares the system for the next customer at that table.

Science News Letter, April 18, 1953

Why Quit Smoking?

Here's How Thousands KEEP UP Smoking Pleasure But CUT DOWN Smoking Harm

WHEN your doctor asks you, "How much do you smoke?" he isn't just talking for his health. He's talking for *your* health.

For there's hardly a medical man today who doesn't agree that smoking can often cause or aggravate serious physical disorders.

Harmful Effects Now Recognized

In TIME there was a recent report from the *Journal of the A.M.A.*: "Cigarette smoking usually sends the blood pressure up, and boosts the pulse rate. It is clear that shrinking of the arteries is caused by nicotine, because denicotinized cigarettes do not produce this result. While doctors are not sure smoking causes heart disease, they have seen symptoms like angina pectoris, that probably resulted from smoking."

And in last October's *Christian Herald*, Roy Norr wrote, in *Smokers Are Getting Scared!*, "No one questions that tobacco smoke irritates the mouth, nose and throat, that it aggravates chronic bronchitis, that smoking is forbidden in cases of gastric and duodenal ulcers . . . But a curtain has largely kept from public notice the controversy raging within medical ranks over the part played by smoking in the rise of bronchogenic carcinoma (lung cancer). The curtain is now being lifted by shocking statistics."

A Startling Fact

"Wait a minute," you say. "I admit the nicotine habit may be bad for me. But I enjoy it! It's pleasant—relaxing."

But here is a startling fact not generally realized. And I quote no less an authority than the *Encyclopædia Britannica:* **"The nicotine determines the strength of the tobacco, but not its flavor and aroma."**

In other words, all the talk about the pleasure of nicotine—for which we smokers have been willing to pay so dearly—is bunk! It is the *other* ingredients in tobacco which give us the fragrance and flavor we enjoy so much.

My cigars and cigarettes—Carl Henrys—are made from fine, fresh tobacco from which most of the nicotine has been carefully removed. Only .7 of 1% nicotine remains—but ALL the precious vegetable oils which give fine tobacco its wonderful flavor and aroma are retained. Thus you are able to KEEP UP the pleasure of smoking but greatly CUT DOWN the harm. No wonder many doctors smoke Carl Henrys, and recommend them to many of their patients.

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Questions

BIOCHEMISTRY—What methods are being investigated for protection from radiation? p. 245.

• • •

GENERAL SCIENCE — Why may personnel raids now be more successful at the National Bureau of Standards? p. 247.

• • •

MEDICINE—What drug halts leukemia temporarily? p. 246.

• • •

GENETICS — What are the types of twins thought to exist? p. 248.

• • •

HORTICULTURE—What are All-America Selections? p. 250.

• • •

NUTRITION—At what temperature should milk be stored in the refrigerator? p. 244.

• • •

Photographs: Cover and p. 245, National Institutes of Health-Federal Security Agency; p. 243, Fremont Davis; p. 250, Bodger Seeds Ltd.; p. 256, Micro-Moisture Controls, Inc.

SURGERY

Blood Pressure Control

➤SURGEONS OPERATING to relieve dangerously high blood pressure and certain other ailments by cutting some of the body's sympathetic nerves from the spinal cord will get better results if they cut more extensively, it appears from research reported to the Federation of American Societies for Experimental Biology meeting in Chicago.

The nerve cutting operation is done in the hope of preventing constriction of small blood vessels which would increase the blood pressure. It is also done in some cases of artery hardening and of another disease of the blood vessels and circulation called Buerger's disease.

The need to do more extensive cutting in this operation was learned in experiments by Drs. Walter C. Randall, J. William Cox, William Alexander, A. B. Hertzman and K. B. Coldwater of St. Louis University School of Medicine and the Veterans Administration Hospital, Jefferson Barracks, St. Louis.

The applied electrical stimulation to the sympathetic nerve of patients at the time of operation and measured sweating on the extremities. The sweating shows which portions of the nerve are affecting the foot and leg. This gave definite information as to how much of the nerve had to be cut.

In some cases, even after the entire sympathetic nerve trunk in the mid-back was cut, sweating persisted. It was possible to trace this to accessory nerve cells in certain spinal nerves.

But the scientists also found that control of blood vessels and control of sweat glands do not always go together. Further studies are needed, they said, on control of the blood vessels alone by the sympathetic nervous system.

Science News Letter, April 18, 1953

MEDICINE

Human Cancers Grafted On Experimental Animal

➤ SUCCESSFUL GRAFTING of human cancers onto laboratory animals, expected to accelerate the fight against cancer, has been achieved by pre-treating the animals with the anti-arthritis hormone, cortisone, Drs. Cornelia Hoch-Ligeti and Y. T. Hsu of the University of Virginia School of Medicine, Charlottesville, announce.

Tests of new potential anti-cancer remedies have heretofore for the most part had to be made on either human cancer patients or on animal cancers in laboratory animals. Now scientists should be able to test such remedies on human cancers but in laboratory animals, they report in *Science* (April 3).

Science News Letter, April 18, 1953

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PHYSIOLOGY

Clue to Dreamers

➤ NOW YOU can tell when your sleeping spouse is dreaming.

Two physiologists have reported that they detected a peculiar pattern of rapid jerky eye movements two or three times a night in test subjects. If the subjects were awakened when they jerked their eyes in sleep, they usually said they had just been dreaming. What they were dreaming about was not mentioned.

Eye movements were recorded by attaching electrodes to the skin above and below and on each side of one or both eyes of the subject. At the same time other wires attached to the head recorded the brain waves. With all these wires leading from his head and face, the subject then went to sleep.

The scientists who did the work were Drs. Eugene Aserinsky and Nathaniel Kleitman of the University of Chicago. They reported their findings to the American Physiological Society meeting in Chicago.

Eye jerking first occurred about three to three and one-half hours after the subject went to sleep. Sometimes a dream seems to last for 15 to 20 minutes and once for as long as an hour.

Then two to two and one-half hours later more eye jerking occurs, and, if the night's sleep lasts long enough, another period of jerks just before he wakes up.

"Should further investigation confirm the tentative conclusion that these clusters of eye movements are concurrent with dreaming," the physiologists said, "it will be possible, for the first time, to obtain objectively data on incidence, frequency and duration of dream episodes and to relate an individual's dream pattern to other characteristics of his personality or living habits."

Science News Letter, April 18, 1953

• RADIO

Saturday, April 25, 1953, 3:15-3:30 p.m. EST

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Alan Boyden, professor of zoology and director of the Serological Museum at Rutgers University, New Brunswick, N. J., discusses "Blood Will Tell."

Trash and brush should be burned in the evening, not in the morning; many *fires* started in the morning get out of control because the outdoor temperature rises, the humidity drops and the wind picks up.

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INVENTION

Improve Partition for Rear Seat Separation

➤ K. T. KELLER, chairman of the Board of the Chrysler Corporation, has been granted a patent by the U. S. Patent Office.

His invention is an improved partition between the back and front seats of an automobile, so that the rear seat "may be converted to and from a limousine style compartment."

The glass partition in Mr. Keller's invention is frameless and is molded in a curve from top to bottom. Lack of a frame affords an unobstructed view for the rear seat passengers and also eliminates the strain generally applied to the edge portions of the partition.

Mr. Keller's patent number is 2,632,668 and it is assigned to the Chrysler Corporation, Highland Park, Mich.

Science News Letter, April 18, 1953

Sells Several Stories as Result of Training

"N.I.A. training helped me to make several sales since I embarked on full-time free-lancing. The latest entitled, 'Cabin Pressurization,' was published in Aviation and Yachting Magazine."—Henry S. Galus, 164 Cedar Grove, New Bedford, Mass.

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ECOLOGY

NATURE RAMBLINGS

East Meets West

➤ EASTERNERS, SPENDING their first spring season in southern California, Arizona or New Mexico, are very apt to exclaim over finding violets and buttercups, anemones and shooting-stars among the chaparral.

Even some of the other flowers which they don't recognize so easily, like some of the western pentstemons and mimuli, have the same delicacy of texture to their leaves, the same dainty tints to their flowers, that mark the spring offerings of the humid woods of the East and somehow seem out of place in the western brushlands.

The secret is that for a few weeks in spring the desert is not quite a desert, and the humid woods are not as humid as they seem: East and West have met each other halfway. What little rain the desert gets is most likely to fall in late winter and early spring, and the seeds and bulbs and rootstocks of the desert's spring flowers take quick advantage of this moisture and expand their leaves and open their flowers in the mild warmth of the April sun.

At the same time, the eastern woodlands are being swept by spring winds and are getting nearly the full benefit of the warm sunshine, with as yet very little development of the leafy canopy that will later block off a large part of the light and slow the winds to weak breezes.

This means that evaporation rates are much higher in April than they will be from mid-May onwards; for a little while, the woodlands approach the condition of the chaparral as the chaparral approaches the condition of the woodlands.

Somewhat similar, though with a difference, is the later coming of spring to the higher altitudes, where the last of the snows do not thaw until June or, at the greater elevations, even early July. Here the same delicate spring flowers appear, to strangers' eyes, seemingly incongruous as they crowd amid the rocks or carpet a meadow on the bank of a glacier-fed stream.

Blossom-time is short on the mountainsides, so you are apt to find a grand jumble of spring, summer and autumn flowers, all hurrying through their cycle of bloom and seed production.

There will be harebell and phlox for the spring, Indian paintbrush and evening primrose for the summer, and fringed gentian and wild aster for the autumn, all going at once.

Science News Letter, April 18, 1953

PSYCHOLOGY

Recording Emotions Helps Budding Writer

➤ THEATER-GOERS AT the State University of Iowa can register an electronic raspberry by pushbutton if they do not like the play they are seeing.

However, the system for evaluating student-written plays has one drawback: it is too simple. The audience sometimes forgets to register its emotions.

Dr. E. C. Mabie, the University theater's director, said a more complicated system should solve the problem. He and his associates have improved the response on existing equipment by seating the audience around tables.

When a play is to be tested, each member of the audience is given a "teeter-totter switch" that registers "like" in one position and "dislike" in another. The switches are connected to instruments that pen the viewer's reactions on a chart. At the same time, a tape recorder captures the scene in sound so that researchers can study audience reaction to definite sections.

The scientists also are using the emotion-recording system to probe the psychological make-up of audiences. Their findings seem to show that:

1. Men and women, on the whole, like about the same things.
2. Men like scenes dominated by men, and women prefer scenes dominated by women.
3. Both sexes like comic situations and prefer them to serious scenes.
4. Women like love scenes better than men do.
5. "Family situations" also appeal more strongly to women than to men.

Science News Letter, April 18, 1953

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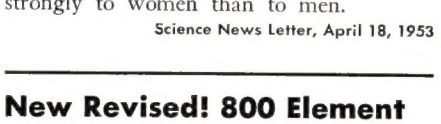

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⚙ *FLASHLIGHT BULB throws either a flood or a spot of light at the flick of a switch. Designed to work in special two-cell flashlights, the lamps have two filaments much like sealed-beam automobile headlights.*

Science News Letter, April 18, 1953

⚙ *CHEMICAL SOLDERING iron needs no electricity because it works on "heat cartridges." Inserted in the iron, the cartridge is triggered by a firing rod that is pulled out and allowed to snap back. The iron heats in 10 seconds to about 800 degrees Fahrenheit, maintaining the soldering temperature for six to eight minutes.*

Science News Letter, April 18, 1953

⚙ *MINERAL BUILDING material replaces concrete in superstructures and gives 10 times better insulation at the same time. Developed in Sweden, the lightweight material comes in slabs 20 inches wide, up to 18 feet long and from two to 10 inches thick. Like wood, it can be sawed, drilled, cut with an ax and nailed.*

Science News Letter, April 18, 1953

⚙ *TOP RAISER for convertibles having electric top-raising facilities automatically causes the top to go up the instant a raindrop hits the device. To keep the top from going up while the car is moving, the device works only when the ignition is off.*

A second model raises both top and push-button windows, and a third model, for hard-top convertibles and sedans, just raises windows. The device is shown in the photograph.

Science News Letter, April 18, 1953

⚙ *THREE-D MOVIE screen for the classroom or home minimizes the need for darkening the room. Satisfactory for either third-dimension or regular movie projection, the screen offers uniform brilliance and high color fidelity. A roll-up model will be put on the market "as soon as possible."*

Science News Letter, April 18, 1953

⚙ *MAGNETIC INSTRUMENT helps doctors remove steel splinters lodged in the eyes of industrial workers. The instrument also has a flexible loop which can be used for removing cinders and dust. Sterilization does not hurt the magnetic qualities of the instrument, the manufacturer reports.*

Science News Letter, April 18, 1953

⚙ *"SAFETY LOCK" for automobile doors may prevent tragedies by keeping the door closed even if children riding inside should accidentally unlatch it. The chrome-plated device clamps to the rain gutter and is locked from the outside with a "twist of the wrist," the manufacturer states.*

Science News Letter, April 18, 1953

⚙ *"SOIL MINERALIZER" slowly dissolves in garden soil and supplies traces of the mineral elements often lacking but needed by vegetables for rigorous growth. During a five-year research program, the chemicals were found to increase crop yields 40% in one case.*

Science News Letter, April 18, 1953

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Do You Know?

Many common *birds* fly about 25 miles an hour.

The *ostrich's* eyes often weigh twice as much as its brain.

Spitting *cobras* often can shoot a jet of venom with deadly aim as far as 10 feet.

The economic loss inflicted on Chicago by *tuberculosis* is almost $100,000,000 yearly.

All *"shooting stars"* smaller than your thumb burn out before they strike the earth.

The Douglas fir *tree* actually is a false hemlock, and a red cedar actually is a cypress.

"Lipoic acid," a new *vitamin* used by man to digest his food, has been discovered and made synthetically by a University of Illinois microbiologist.

Jet pilots measure their *aircraft fuels* in pounds rather than in gallons because fuel density can change as much as 10% at high altitudes, shrinking the volume deceptively.